WHAT IS CLAIMED IS:

1. A system for optimizing location-based services by adjusting a maximum antenna range (MAR) of a base station, the system comprising:

a test terminal for sending MAR optimizing data, including C-GPS geolocation information and A-GPS data which are received from at least one GPS satellite using conventional-GPS (C-GPS) and assisted-GPS (A-GPS) schemes, to at least one measurement point;

a base transceiver station for transmitting and receiving signals and data to and from the test terminal and having a preset MAR;

a base station controller for receiving and processing signals emitted from the base transceiver station and a mobile switching center connected to the base station controller; and

a position determination entity for receiving the MAR optimizing data through a mobile communication network, analyzing the MAR optimizing data to update the MAR of a wireless base station that meets MAR optimizing requirements, and optimizing the location-based services.

2. The system according to claim 1, wherein the position determination entity has an MAR optimizing algorithm for setting a maximum distance among distances between the wireless

base station including the base transceiver station and each measurement point, as a new MAR.

3. The system according to claim 2, wherein the MAR optimizing algorithm obtains the maximum distance by calculating the distance between the longitude and latitude coordinates of the wireless base station and those of each measurement point.

4. The system according to claim 3, wherein the longitude and latitude coordinates of each measurement point are included in the C-GPS geolocation information received by the position determination entity.

5. The system according to claim 1, wherein the test terminal is equipped with a C-GPS receiver.

6. The system according to claim 1, wherein the test terminal is equipped with an A-GPS receiver module.

7. The system according to claim 1, wherein the test terminal is a PDA (Personal Digital Assistant), a cell phone, a PCS (Personal Communication Service) phone, a handheld PC, a GSM (Global System for Mobile) phone, a W-CDMA (Wideband CDMA) phone, a CDMA-2000 phone, a MBS (Mobile Broadband System)

phone, a notebook computer or a laptop computer.

8. The system according to claim 1, wherein the mobile communication network includes a synchronous or asynchronous mobile communication network or a 4G ALL-IP communication network.

9. The system according to claim 1 or 8, wherein the base transceiver station (BTS) and the base station controller (BSC) in a synchronous mobile communication network can be a radio transceiver subsystem (RTS) and a radio network controller (RNC) in an asynchronous mobile communication network.

10. The system according to claim 1, wherein the position determination entity communicates with an MAR database storing a table of MARs which are set according to identification codes of a plurality of wireless base stations.

11. The system according to claim 10, wherein the position determination entity updates the table of MARs using a newly updated MAR and stores the updated table in the MAR database.

12. The system according to claim 1, wherein the position

determination entity communicates with an MAR optimizing database which stores the MAR optimizing data received from the test terminal.

13. The system according to claim 12, wherein the MAR optimizing database stores the MAR optimizing data classified according to at least one of measurement dates, measurement times and identification codes of the wireless base stations.

14. The system according to claim 1, wherein the position determination entity communicates with a reference GPS antenna which monitors geolocation information in real time according to identification codes of the GPS satellites.

15. A method for optimizing location-based services in a system comprising a test terminal for receiving GPS signals using C-GPS and A-GPS schemes, a mobile communication network which includes wireless base stations having preset MARs and a mobile switching center, and a position determination entity for resetting the MARs by communicating with an MAR database storing geolocation information and MARs of the wireless base stations, the method comprising the steps of:

(a) receiving and storing C-GPS geolocation information and A-GPS data transferred from the test terminal;

(b) analyzing the C-GPS geolocation information and A-GPS

data of each wireless base station to determine an object wireless base station for which MAR optimization is needed;

(c) calculating a new MAR using a MAR optimizing algorithm; and

(d) setting the new MAR as the optimized MAR of the object wireless base station and storing it in the MAR database.

16. The method according to claim 15, wherein the C-GPS geolocation information contains information on latitudes, longitudes and number of GPS satellites from which the GPS signals have been received.

17. The method according to claim 15, wherein the A-GPS data contains satellite identification codes, number of satellites, measurement time, strength of the GPS signals, pseudoranges, network IDs (NID) and base station IDs (BSID).

18. The method according to claim 17, wherein the BSID is an identification code of a wireless base station whose coverage covers the test terminal which has transferred the C-GPS geolocation information.

19. The method according to claim 15, wherein the position determination entity stores the received C-GPS geolocation information and A-GPS data in an MAR optimizing

database at step (a).

20. The method according to claim 19, wherein the position determination entity classifies the C-GPS geolocation information and the A-GPS data according to identification codes of the wireless base stations and stores the classified information and data in the MAR optimizing database.

21. The method according to claim 15, wherein the object wireless base station at step (b) is a wireless base station which is located adjacent to or covers at least one measurement point at which over a predetermine number of GPS satellites are observed and included in the C-GPS geolocation information and less than the predetermined number of GPS satellites are observed and included in the A-GPS data.

22. The method according to claim 15 or 21, wherein the MAR optimizing algorithm sets the maximum distance between the wireless base station and each measurement point as a new MAR.

23. The method according to claim 22, wherein the MAR optimizing algorithm obtains the maximum distance by calculating the distance between the longitude and latitude coordinates of the wireless base station and those of each measurement point.

24. The method according to claim 23, wherein the longitude and latitude coordinates of each measurement point are included in the C-GPS geolocation information received by the position determination entity.

25. A method for optimizing location-based services for use with a system including a test terminal for receiving GPS signals under C-GPS and A-GPS schemes and a position determination entity for resetting MARs of a wireless base stations of a mobile communication network by receiving C-GPS geolocation information and A-GPS data transferred from the test terminal, the method comprising the steps of:

(a) obtaining and storing the C-GPS geolocation information of each measurement point while moving by using the test terminal set to a C-GPS operation mode;

(b) measuring the GPS signals at said each measurement point under a A-GPS operation mode;

(c) obtaining and storing the A-GPS data under the A-GPS scheme; and

(d) gathering and transferring the C-GPS geolocation information and the A-GPS data to the position determination entity.

26. The method according to claim 25, wherein switching

between the C-GPS operation mode and the A-GPS operation mode is carried out by operating an operation mode change button provided on a surface of the test terminal.

27. The method according to claim 25, wherein switching between the C-GPS operation mode and the A-GPS operation mode is carried out by a program installed in the test terminal.

28. The method according to claim 25, wherein the C-GPS geolocation information contains information on latitudes, longitudes and number of GPS satellites from which the GPS signals have been received.

29. The method according to claim 25, wherein the A-GPS data contains satellite identification codes, number of satellites, measurement time, strength of the GPS signals, pseudoranges, network IDs (NID) and base station IDs (BSID).

30. The method according to claim 29, wherein the BSID is an identification code of a wireless base station whose coverage covers the test terminal which has transferred the C-GPS geolocation information.

31. The method according to claim 25, wherein step (c) includes the steps of:

(c1) transmitting an A-GPS position determination request signal to the position determination entity;

(c2) receiving assistance data transferred from the position determination entity;

(c3) detecting the GPS signals by using coordinate information of GPS satellites contains in the assistance data; and

(c4) generating and storing the A-GPS data by using navigation data contained in the GPS signals detected at step (c3).

32. The method according to claim 31, wherein at step (c1), the A-GPS position determination request signal includes identification code information of a wireless base station whose coverage covers the test terminal or which is located adjacent to the measurement point.

33. The method according to claim 31 or 32, wherein the assistance data includes the coordinate information and the identification code information of the GPS satellites which are visible by the test terminal at the measurement point.

34. The method according to claim 31, wherein at step (c2), the position determination entity transfers the assistance data by using "Provide GPS Acquisition Assistance"

message defined in IS (Interim Standard)-801-1.

35. The method according to claim 25, wherein the test terminal starts operation in the A-GPS operation mode and then changes modes to the C-GPS operation mode.